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Applicant #1, Name: Letantia Bussell

Applicant #2, Name: _____

Title: Topical Fluoroquinolone Antibiotics in an Alcohol and Acetone Vehicle"

☒ Specification, Claims, and Abstract Nr. of Sheets 12

☒ Declaration: Date Signed. February 27, 1998

☐ Drawing(s): Nr of Sheets Enc. Formal: _____ Informal: _____

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Very respectfully,

Letantia Bussell
Applicant #1 Signature

_____
Applicant #2 Signature

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Address

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Inventor

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Patent Application of

Letantia Bussell

for

TOPICAL FLUOROQUINOLONE ANTIBIOTICS IN AN ALCOHOL AND ACETONE VEHICLE

BACKGROUND OF THE INVENTION

This invention relates to the topical application of all fluoroquinolones, including but not limited to, ciprofloxacin, ofloxacin, enoxacin, cinoxacin, pefloxacin, lomefloxacin, norfloxacin, tosufloxacin, fleroxacin, temafloxacin, trovafloxacin, and difloxacin, mixed in an alcohol and acetone vehicle for the treatment of a variety of organisms which infect the skin and a variety of inflammatory skin conditions. It will be in the form of a cream, ointment, lotion, gel, suspension, emulsion, cleansing bar, pledget, salve, tincture, spray, transdermal device, or other appropriate non-toxic pharmaceutical carrier.

Fluoroquinolone antibiotics were first developed in the early 1960s but the earliest one, nalidixic acid, proved particularly susceptible to resistant bacteria thereby making it ineffectual

over the long term. In the last five years, fluoroquinolones have become increasingly popular as chemical alterations have dramatically decreased the resistant bacteria appearing after treatment. This has made the family of fluoroquinolones more effective than a number of other antibiotics in combating bacterial infections. Fluoroquinolones attack bacteria by targeting DNA gyrase and by interfering with bacterial replication.

Theses antibiotics have been used extensively to treat respiratory tract infections, urinary tract infections, diarrhea, postoperative-wound infections, and many other conditions, because they are readily absorbed after oral and topical administration and exhibit potent in vitro activity against a broad spectrum of bacterial species. Patent 5,476,854 describes the oral, intravenous and transdermal use of lomefloxacin to treat urinary tract infections, upper respiratory tract infections, sexually-transmitted infections, opthalmological infections and intestinal infections.

Fluoroquinolone antibiotics are active against a wide spectrum of gram-positive and gram-negative bacteria because of their broad antimicrobial activity. Varieties of fluoroquinolones, specifically ciprofloxacin, have been found to be effective against Staphylococcus aureus, Streptococcus pneumoniae, coagulese-negative staphylococci, Streptococcus pyogenes, Staphylococcus epidermis, Pseudomonas aeruginosa, Escherichia coli, Klebsiella pneumoniae, Enterobacter cloacae, Proteus mirabilis, Proteus vulgaris, Providencia stuartii, Morganella morganii, Citrobacter diversus, Citrobacter freundii, and other susceptible organisms. The mounting resistance of Staphylococcus aureus to both penicillin and erythromycin has made the fluoroquinolone antibiotics a viable alternative for the treatment of

skin diseases. Studies of the effectiveness of the oral treatment of ciproflaxacin on skin and soft tissue infections have shown the medicine to have cure rates of 80% to 100%.

Topical compositions of fluoroquinolones and its derivatives have been used for opthalmic use, as seen in Patent 4,551,456, which describes the use of norfloxacin and related antibiotics in the topical treatment of ocular infections. Patent 5,374,432 describes a topical composition chosen from aminoglycoside antibiotics and quinolone antibiotics mixed in a sterile carrier, such as a water or ointment base, for the treatment of burns, other infection-prone wounds and ocular infection. Patent 5,401,741 describes the topical treatment of ofloxacin mixed in an aqueous solution, for otopathy.

Combining a fluoroquinolone with a second active ingredient or antibiotic utilizes the two drugs' different mechanisms simultaneously to attack the many varieties of skin infections, inflammations and diseases. Fluoroquinolones have been tested in combination with coumermycin, amikacin, oxacillin, gentamicin, vanomycin, azlocillin, rifampin, and fosfomycin and have shown different degrees of synergy against Staphylococcus aureus. Patents 3,944,668 and 4,038,388, combine tetracycline with 8-hydroxyquinoline in a topical or oral application as the two active ingredients behave synergistically against certain micro-organisms. Patent 5,648,389 describes a topical composition mixing an antimicrobial, including ciprofloxacin, with a beta hydroxy acid and water soluble zinc compound to treat acne in humans.

The objective of this invention is to combine all fluoroquinolones, including but not limited to, ciprofloxacin, ofloxacin, enoxacin, cinoxacin, pefloxacin, lomefloxacin, norfloxacin,

tosufloxacin, fleroxacin, temafloxacin, trovafloxacin, and difloxacin, in an alcohol and acetone vehicle for the topical treatment of a variety of skin conditions. The composition will be in the form of a cream, ointment, lotion, gel, suspension, emulsion, cleansing bar, pledget, salve, tincture, spray, transdermal device, or other appropriate non-toxic pharmaceutical carrier.

OTHER REFERENCES CITED

Brody, Terri., and Myles L. Pensak, "The Fluoroquinolones," The American Journal of Otology, vol. 12, no. 6, pp. 477-479, November 1991.

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Fong, I.W., "The Role of Fluoroquinolones in the Management of Skin, Soft Tissue, and Bone Infections," Clinical and Investigative Medicine, vol. 12, no. 1, pp. 44-49, 1989.

Guay, David R., "The Role of Fluoroquinolones," Pharmacotherapy, supplement to vol. 12, no. 6, pp. 71S-85S, 1992.

Neu, Harold C., "Use of Fluoroquinolone Antimicrobial Agents by Cardiovascular and Cardiopulmonary Surgeons," Texas Heart Institute Journal, vol. 17, no. 1, pp. 12-21, 1990.

Neu, Harold C., "Synergy of Fluoroquinolones with Other Antimicrobial Agents," Reviews of Infectious Diseases, vol. 11, suppl. 5, pp. S1025-S1035, July-August 1989.

Nolen, Thomas M., "Clinical Trials of Cefprozil for Treatment of Skin and Skin-Structure Infections: Review," Clinical Infectious Diseases,

vol. 14(Suppl 2), pp. S255-263, 1992.

Powers, Robert D., Robert Schwartz, Rodney M. Snow, and Dabney R. Yarbrough III, "Ofloxacin versus Cephalaxin in the Treatment of Skin, Skin Structure, and Soft-Tissue Infections in Adults," Clinical Therapeutics, vol. 13, no. 6, pp. 727-736, 1991.

Rodriguez, William J., and Bernhard L. Wiedermann, "The Role of Newer Oral Cephalosporins, Fluoroquinolones, and Macrolides in the Treatment of Pediatric Infections," Advances in Pediatric Infectious Diseases, vol. 9, pp. 125-159, 1994.

Talley, Joseph H., "Fluoroquinolones: New Miracle Drugs?" Postgraduate Medicine, vol. 89, no. 1, pp. 101-103, 106-108, 111-113, January 1991.

DESCRIPTION OF THE INVENTION

While the invention will be described in connection with a preferred embodiment and method, it will be understood that I do not intend to limit the invention to the embodiment or method. On the contrary, I intend to cover all alternatives, modifications, and equivalents as may be included within the spirit and scope of the invention as defined by the appended claims.

In accordance with the present invention, the selected fluoroquinolone antibiotic in combination in an alcohol and acetone vehicle in the form of an ointment, lotion, cream, gel, suspension, emulsion, cleansing bar, pledget, salve, tincture, spray, transdermal device, or other appropriate non-toxic pharmaceutical carrier. As stated above, the resulting composition is used for the topical treatment of a variety of skin infections conditions.

Compositions are prepared by mixing a selected fluoroquinolone antibiotic as an active ingredient with an alcohol and acetone vehicle. In this solution, a fluoroquinolone antibiotic will be added to an independent mixture of acetone, alcohol and water whereby the fluoroquinolone retains its medicinal properties and allows for the topical administration of the antibiotic.

In the following compositions, "Active Ingredient," means any selected fluoroquinolone antibiotic. The respective concentrations of any of the ingredients can vary (0.1% to 99.0%, for example) as different strengths of the composition are produced. The inactive ingredients are representative only and may vary according to need. Various preservatives (such as benzoic acid) will also be added as needed. These preparations describe the manner and processing of

using this invention and are to be construed as exemplary embodiments of the inventive concept and not as limitations thereof.

Example 1

Ointment

	mg/g
Active Ingredient	10.0
Acetone	180.0
SD Alcohol 40	360.0
Mineral Oil	50.0
White Petroleum q.s. ad	1.0

Example 2

Lotion

	mg/g
Active Ingredient	10.0
Acetone	180.0
SD Alcohol 40	360.0
Polyethylene glycol 400	100.0
Hydroxypropyl cellulose	5.0
Propylene glycol q.s. ad	1.0
Purified Water q.s. ad	100.0

Example 3

Cream

	mg/g
Active Ingredient	10.0
Acetone	180.0
SD Alcohol 40	360.0
Isopropyl myristate	100.0
Polyoxyethylene (2) monostearyl ether	10.0
Polyoxyethylene (20) monostearyl ether	25.0
Propylene glycol	100.0
Purified water q.s. ad	1.0g

Example 4

Gel

	mg/g
Active Ingredient	10.0
Acetone	180.0
SD Alcohol 40	360.0
Hydroxypropyl cellulose	50.0
Allantoin	10.0
Propylene glycol	50.0
Purified water q.s. ad	1.0g

Example 5

Suspension

	mg/g
Active Ingredient	10.0
Acetone	180.0
SD Alcohol 40	360.0
Polyethylene glycol 400	100.0
Hydroxypropyl cellulose	5.0
Propylene glycol q.s. ad	1.0

Example 6

Emulsion

	mg/g
Active Ingredient	10.0
Acetone	180.0
SD Alcohol 40	360.0
Polyethylene glycol 400	100.0
Hydroxypropyl cellulose	5.0
Propylene glycol q.s. ad	1.0

I claim:

1. A method of topically treating a variety of skin conditions through the composition of 1% (or greater or smaller depending upon the individual patient tolerance) fluoroquinolone antibiotic in a topical alcohol and acetone vehicle.

2. The method described in claim 1 wherein the fluoroquinolone antibiotic is selected from a group consisting of, but is not limited to, ciprofloxacin, ofloxacin, enoxacin, cinoxacin, pefloxacin, lomefloxacin, norfloxacin, tosufloxacin, fleroxacin, temafloxacin, trovafloxacin, and difloxacin, in a topical agent, in the form of an ointment, cream, lotion, gel, suspension, emulsion, cleansing bar, pledget, salve, tincture, spray, transdermal device, or other appropriate non-toxic pharmaceutical carrier.

3. The method described in claim 1 wherein acetone is present in a weight percentage range spanning 10% to 75% (or greater or smaller depending upon various preparations for individual patient tolerance).

ABSTRACT OF THE DISCLOSURE

A pharmaceutical composition of all fluoroquinolones, including but not limited to, ciprofloxacin, ofloxacin, enoxacin, cinoxacin, pefloxacin, lomefloxacin, norfloxacin, tosufloxacin, fleroxacin, temafloxacin, trovafloxacin, and difloxacin, mixed in an alcohol acetone vehicle for the treatment of a variety of skin conditions. The topical carrier will be in the form of a cream, ointment, lotion, gel, suspension, emulsion, cleansing bar, pledget, salve, tincture, spray, transdermal device, or other appropriate non-toxic pharmaceutical vehicle.

Declaration for Utility or Design Patent Application

As a below-named inventor, I hereby declare that my residence, post office address, and citizenship are as stated below next to my name and that I believe that I am the original, first, and sole inventor [if only one name is listed below] or an original, first, and joint inventor [if plural names are listed below] of the subject matter which is claimed and for which a patent is sought on the invention, the specification of which is attached hereto and which has the following title.

Topical Fluoroquinolone Antibiotics in an Alcohol and Acetone Vehicle

I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment specifically referred to in the oath or declaration. I acknowledge a duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, Section 1.56(a).

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Title 18, United States Code, Section 1001, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon

Please send correspondence and make telephone calls to the First Inventor below.

Signature: Sole/First Inventor. Letantia Bussell

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Signature: Joint/Second Inventor: _____

Print Name: _____ Date: _____

Legal Residence:* _____ Citizen of: _____

Post Office Address _____

_____

Telephone: _____

* City and state, county and state or city, state and country, if foreign

In the United States Patent and Trademark Office

First/Sole Applicant: Letantia Bussell

Joint/Second Applicant: _____

Title: * Topical Fluoroquinolone Antibiotics in an Alcohol and Acetone Vehicle

Small Entity Declaration—Independent Inventor(s)

As a below-named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees under Section 41(a) and (b) of Title 35 United States Code, to the Patent and Trademark Office with regard to my above-identified invention described in the specification filed herewith. I have not assigned, granted, conveyed, or licensed—and am under no obligation under any contract or law to assign, grant, convey, or license—any rights in the invention to either (a) any person who could not be classified as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or (b) any concern which would not qualify as either (i) a small business concern under 37 CFR 1 9(d) or (ii) a nonprofit organization under 37 CFR 1.9(e).

Each person, concern, or organization to which I have assigned, granted, conveyed, or licensed—or am under an obligation under contract or law to assign, grant, convey, or license—any rights in the invention is listed below:

☐ There is no such person, concern, or organization.

☒ Any applicable person, concern, or organization is listed below *

Full Name Letantia Bussell

Address 433 N. Camden Drive, Suite 805

Beverly Hills CA 90210

I acknowledge a duty to file, in the above application for patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate (37 CFR 1 28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed

Letantia Bussell

Signature of Sole/First Inventor

LETANTIA BUSSELL

Print Name of Sole/First Inventor

2/27/98

Date of Signature

Signature of Joint/Second Inventor

Print Name of Joint/Second Inventor

Date of Signature

*Note: A separate Small Entity Statement is required from any listed entity

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Serial Number: _____

Appn. Filed. _____

Applicant(s): _____

Appn. Title: _____

Examiner/GAU: _____

Disclosure Document Reference Letter

Date. February 27, 1998

Assistant Commissioner for Patents
Washington, District of Columbia 20231

Sir:

A disclosure document as identified below was previously filed in the Patent and Trademark Office As this disclosure relates to the above patent application, applicant(s) request that this Disclosure Document be retained and referenced to the above application

Disclosure Document Title: Topical Fluoroquinolones in an Alcohol Acetone Mixture

Disclosure Document Number 413307

Disclosure Document Filing Date June 16, 1997

Very Respectfully,

Letantia Bussell

Signed Name

Signed Name

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Form 3-4

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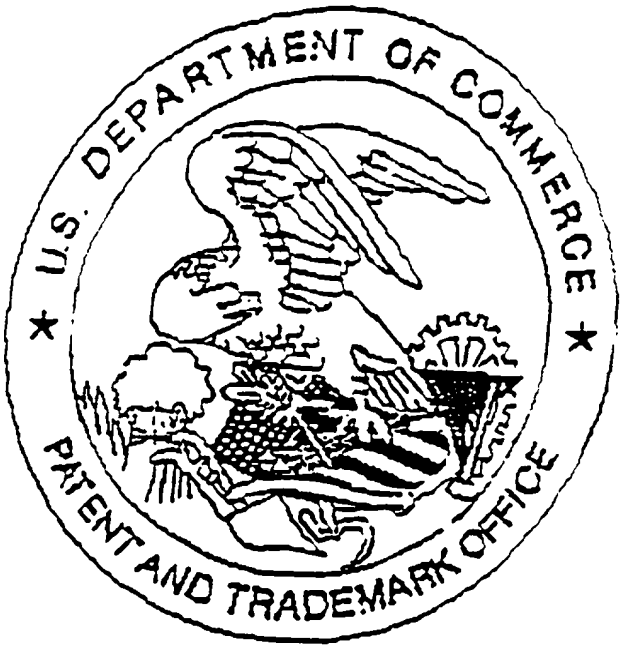

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